personnel to work close to the conveyor, the conveyor controls shall not be left unattended while the conveyor is in operation.

(b) *Guarding.* All conveyor and trimmer drives that create a hazard shall be adequately guarded.

(c) *Approved for location.* Electric motors and controls on conveyors and trimmers used to handle grain and exposed to grain dust shall be of a type approved by a nationally recognized testing laboratory for use in Class II, Division I locations. (See §1910.7 of this chapter.)

(d) *Grain trimmer control box.* Each grain trimmer shall have a control box on the weather deck close to the spout feeding the trimmer.

(e) *Grain trimmer power cable.* Power cables between the deck control box and the grain trimmer shall be used only in continuous lengths without splice or tap between connections.

(f) *Portable conveyors.* Portable conveyors shall be stable within their operating ranges. When used at variable fixed levels, the unit shall be secured at the operating level.

(g) *Delivery and braking.* When necessary for the safety of employees, provisions shall be made for braking objects at the delivery end of the conveyor.

(h) *Electric brakes.* Conveyors using electrically released brakes shall be constructed so that the brakes cannot be released until power is applied and the brakes are automatically engaged if the power fails or the operating control is returned to the ''stop'' position.

(i) *Starting powered conveyors.* Powered conveyors shall not be started until all employees are clear of the conveyor or have been warned that the conveyor is about to start up.

(j) *Loading and unloading.* The area around conveyor loading and unloading points shall be kept clear of obstructions during conveyor operations.

(k) *Lockout/tagout.* (1) Conveyors shall be stopped and their power sources locked out and tagged out during maintenance, repair, and servicing. If power is necessary for testing or for making minor adjustments, power shall only be supplied to the servicing operation.

(2) The starting device shall be locked out and tagged out in the stop position before an attempt is made to remove the cause of a jam or overload of the conveying medium.

(l) *Safe practices.* (1) Only designated persons shall operate, repair or service powered conveyors.

(2) The employer shall ensure that each employee stays off operating conveyors.

(3) Conveyors shall be operated only with all overload devices, guards and safety devices in place and operable.

§1918.65 Mechanically powered vehicles used aboard vessels.

(a) *Applicability.* This section applies to every type of mechanically powered vehicle used for material or equipment handling aboard a vessel.

(b) *General.* (1) Modifications, such as adding counterweights that might affect the vehicle's capacity or safety, shall not be done without either the manufacturers' prior written approval or the written approval of a registered professional engineer experienced with the equipment, who has consulted with the manufacturer, if available. Capacity, operation and maintenance instruction plates, tags or decals shall be changed to conform to the equipment as modified.

(2) Rated capacities, with and without removable counterweights, shall not be exceeded. Rated capacities shall be marked on the vehicle and shall be visible to the operator. The vehicle weight, with and without a counterweight, shall be similarly marked.

(3) If loads are lifted by two or more trucks working in unison, the total weight shall not exceed the combined safe lifting capacity of all trucks.

(c) *Guards for fork lift trucks.* (1) Except as noted in paragraph (c)(5) of this section, fork lift trucks shall be equipped with overhead guards securely attached to the machines. The guard shall be of such design and construction as to protect the operator from boxes, cartons, packages, bagged material, and other similar items of cargo that might fall from the load being handled or from stowage.

(2) Overhead guards shall not obstruct the operator's view, and openings in the top of the guard shall not

exceed six inches (15.24 cm) in one of the two directions, width or length. Larger openings are permitted if no opening allows the smallest unit of cargo being handled through the guard.

(3) Overhead guards shall be built so that failure of the vehicle's mast tilting mechanism will not displace the guard.

(4) Overhead guards shall be large enough to extend over the operator during all truck operations, including forward tilt.

(5) An overhead guard may be removed only when it would prevent a truck from entering a work space and only if the operator is not exposed to low overhead obstructions in the work space.

(6) Where necessary to protect the operator, fork lift trucks shall be fitted with a vertical load backrest extension to prevent the load from hitting the mast when the mast is positioned at maximum backward tilt. For this purpose, a ''load backrest extension'' means a device extending vertically from the fork carriage frame to prevent raised loads from falling backward.

(d) *Guards for bulk cargo-moving vehicles.* (1) Every crawler type, rider operated, bulk cargo-moving vehicle shall be equipped with an operator's guard of such design and construction as to protect the operator, when seated, against injury from contact with a projecting overhead hazard.

(2) Overhead guards and their attachment points shall be so designed as to be able to withstand, without excessive deflection, a load applied horizontally at the operator's shoulder level equal to the drawbar pull of the machine.

(3) Overhead guards are not required when the vehicle is used in situations in which the seated operator cannot contact projecting overhead hazards.

(4) After July 26, 1999, bulk cargo-moving vehicles shall be equipped with rollover protection of such design and construction as to prevent the possibility of the operator being crushed because of a rollover or upset.

(e) *Approved trucks.* (1) ''Approved power-operated industrial truck'' means one listed as approved for the intended use or location by a nationally recognized testing laboratory (see §1910.7 of this chapter).

(2) Approved power-operated industrial trucks shall bear a label or other identification indicating testing laboratory approval.

(3) When the atmosphere in an area is hazardous (see §1918.2 and §1918.93), only approved power-operated industrial trucks shall be used.

(f) *Maintenance.* (1) Mechanically powered vehicles shall be maintained in safe working order. Safety devices shall not be removed or made inoperative except where permitted in this section. Vehicles with a fuel system leak or any other safety defect shall not be operated.

(2) Braking systems or other mechanisms used for braking shall be operable and in safe condition.

(3) Replacement parts whose function might affect operational safety shall be equivalent in strength and performance capability to the original parts that they replace.

(4) Repairs to the fuel and ignition systems of mechanically powered vehicles that involve fire hazards shall be conducted only in locations designated as safe for such repairs.

(5) Batteries on all mechanically powered vehicles shall be disconnected during repairs to the primary electrical system except when power is necessary for testing and repair. On vehicles equipped with systems capable of storing residual energy, that energy shall be safely discharged before work on the primary electrical system begins.

(6) Only designated persons shall do maintenance and repair.

(g) *Parking brakes.* All mechanically powered vehicles purchased after January 21, 1998, shall be equipped with parking brakes.

(h) *Operation.* (1) Only stable and safely arranged loads within the rated capacity of the mechanically powered vehicle shall be handled.

(2) The employer shall require drivers to ascend and descend grades slowly.

(3) If the load obstructs the forward view, the employer shall require drivers to travel with the load trailing.

(4) Steering knobs shall not be used unless the vehicle is equipped with power steering.

(5) When mechanically powered vehicles use cargo lifting devices that have a means of engagement hidden from the operator, a means shall be provided to enable the operator to determine that the cargo has been engaged.

(6) No load on a mechanically powered vehicle shall be suspended or swung over any employee.

(7) When mechanically powered vehicles are used, provisions shall be made to ensure that the working surface can support the vehicle and load, and that hatch covers, truck plates, or other temporary surfaces cannot be dislodged by movement of the vehicle.

(8) When mechanically powered vehicles are left unattended, load-engaging means shall be fully lowered, controls neutralized, brakes set and power shut off. Wheels shall be blocked or curbed if the vehicle is on an incline.

(9) When lift trucks or other mechanically powered vehicles are being operated on open deck-type barges, the edges of the barges shall be guarded by railings, sideboards, timbers, or other means sufficient to prevent vehicles from rolling overboard. When such vehicles are operated on covered lighters where door openings other than those being used are left open, means shall be provided to prevent vehicles from rolling overboard through such openings.

(10) Unauthorized personnel shall not ride on mechanically powered vehicles. A safe place to ride shall be provided when riding is authorized.

(11) An employee may be elevated by fork lift trucks only when a platform is secured to the lifting carriage or forks. The platform shall meet the following requirements:

(i) The platform shall have a railing complying with §1917.112(c) of this chapter.

(ii) The platform shall have toeboards complying with §1917.112(d) of this chapter, if tools or other objects could fall on employees below.

(iii) When the truck has controls elevated with the lifting carriage, means shall be provided for employees on the platform to shut off power to the vehicle.

(iv) Employees on the platform shall be protected from exposure to moving truck parts.

(v) The platform floor shall be skid resistant.

(vi) An employee shall be at the truck's controls whenever employees are elevated.

(vii) While an employee is elevated, the truck may be moved only to make minor adjustments in placement.

[62 FR 40202, July 25, 1997, as amended at 65 FR 40945, June 30, 2000]

§1918.66 Cranes and derricks other than vessel's gear.

(a) *General.* The following requirements shall apply to the use of cranes and derricks brought aboard vessels for conducting longshoring operations. They shall not apply to cranes and derricks forming part of a vessel's permanent equipment.

(1) *Certification.* Cranes and derricks shall be certificated in accordance with part 1919 of this chapter.

(2) *Posted weight.* The crane weight shall be posted on all cranes hoisted aboard vessels for temporary use.

(3) *Rating chart.* All cranes and derricks having ratings that vary with boom length, radius (outreach) or other variables shall have a durable rating chart visible to the operator, covering the complete range of the manufacturers' (or design) capacity ratings. The rating chart shall include all operating radii (outreach) for all permissible boom lengths and jib lengths, as applicable, with and without outriggers, and alternate ratings for optional equipment affecting such ratings. Precautions or warnings specified by the owner or manufacturer shall be included along with the chart.

(4) *Rated loads.* The manufacturers' (or design) rated loads for the conditions of use shall not be exceeded.

(5) *Change of rated loads.* Designated working loads shall not be increased beyond the manufacturers' ratings or original design limitations unless such increase receives the manufacturers' approval. When the manufacturers' services are not available or where the equipment is of foreign manufacture, engineering design analysis shall be done or approved by a person accredited for certificating the equipment under part 1919 of this chapter. Engineering design analysis shall be done by a registered professional engineer